

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
5 February 2004 (05.02.2004)

PCT

(10) International Publication Number  
**WO 2004/011361 A1**

(51) International Patent Classification?: B67D 1/00, 3/00

(21) International Application Number:

PCT/NL2002/000516

(22) International Filing Date: 30 July 2002 (30.07.2002)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): ITSAC N.V. [NL/NL]; Chuchubiweg 17, Willemstad, Curacao (AN).

(72) Inventor; and

(75) Inventor/Applicant (for US only): LAST, Laurens [NL/MC]; Parc Saint Roman, 7, Avenue de St. Roman, MC-98000 Monte Carlo (MC).

(74) Agent: BROOKHUIS, H., J., A.; Exter Polak & Char-  
louis B.V., P.O. Box 3241, NL-2280 GE Rijswijk (NL).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

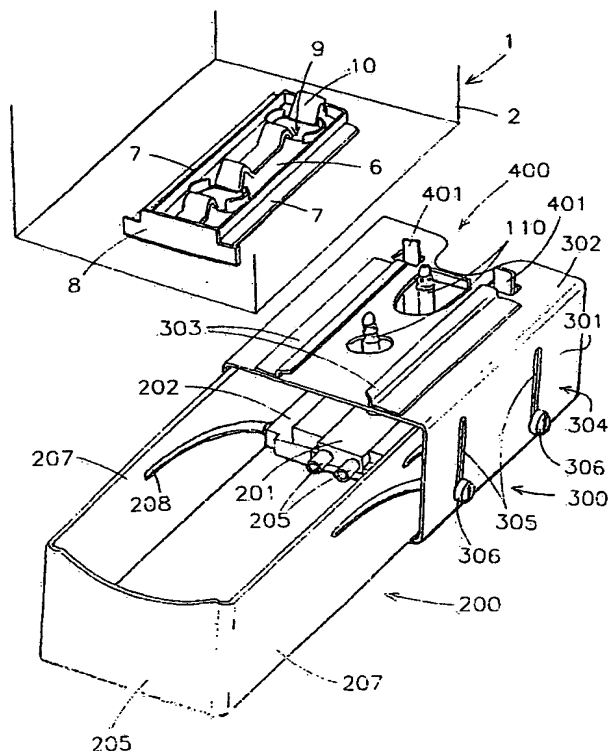
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: A SYSTEM FOR DISPENSING A LIQUID SUBSTANCE



(57) Abstract: A system for dispensing at least one liquid substance comprises a bag filled with a substance which is to be dispensed and a dispensing device which has a housing in which there is a space for accommodating the bag. The bag has a first connector element and the dispensing device has a second connector element, connectable to the first connector element allowing discharge of said substance from the bag. The dispensing device has retaining means for retaining the first connector element of the bag in a defined pre-connection position prior to interconnecting the first and second connector elements. The first and second connector elements are displaceable relative to each other between a connected position and a disconnected position. The dispensing device has actuator means associated with the first or second connector elements for displacing the first and second connector elements relative to each other between the connected and unconnected position.

WO 2004/011361 A1

Best Available Copy

WO 2004/011361 A1



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## A SYSTEM FOR DISPENSING A LIQUID SUBSTANCE

The present invention relates to a system for dispensing at least one liquid substance.

The system comprises at least one bag filled with a substance which is to be dispensed and a dispensing device  
5 which has a housing in which there is a space for accommodating the bag. The bag has a first connector element and the dispensing device has a second connector element, connectable to the first connector element allowing discharge of said substance from the bag.

10 A system as described above is generally known.

A drawback of the known system relates to the interconnecting of the first and second connector elements upon introduction of the bag into the dispensing device.

In some known systems the operator of the dispenser has to  
15 introduce the bag into the dispensing device and at the same time bring the first connector element into connection with the second connector element. This is often difficult to do and the operator can fail to bring about a reliable connection.

In other known systems the operator has to grab both the  
20 first and second connector elements and bring them together which suffers from the same drawbacks.

It is an object of the invention to provide a dispensing system allowing an efficient and reliable interconnection of  
25 the first and second connector elements.

It is another object of the invention to provide a dispensing system allowing the use of an assembly of multiple bags each having an associated first connector element.

It is a yet another object of the invention to provide a  
30 bag-in-box assembly, advantageously usable in the system of the invention.

The invention achieves the first mentioned object by providing a system according to the preamble of claim 1, which is characterised in that the dispensing device comprises retaining means for retaining the first connector element of the bag in a defined pre-connection position prior to interconnecting the first and second connector elements, and in that the first and second connector elements are displaceable relative to each other between a connected position and a disconnected position, and in that the dispensing device has actuator means associated with the first or second connector element for displacing the first and second connector elements relative to each other between the connected and unconnected position.

In one embodiment the second connector element is mounted stationary in the dispensing device and the bag provided with the first connector element is displaceable.

In a preferred embodiment the second connector element is displaceable in the dispensing device.

20

The invention thus provides for an exact positioning and retaining of the first connector element - either in a predetermined fixed position in the dispensing device or by means of an actuator means co-operating with a displaceable first connector element - prior to the relative displacement of the first and second connector elements towards the connected position thereof. This avoids the problems associated with the prior art systems and guarantees a reliable interconnection of the connector elements.

The invention also allows for a more convenient and rapid connector of a flexible bag to the dispensing device.

Preferably in the disconnected position the second connector element is located outside the space for housing the bag. This avoids the risk that the second connector element is damaged upon introduction or removal of the bag from the dispensing device.

35

In a preferred embodiment the housing of the dispensing device allows insertion and removal of the bag in a first direction (i.e. horizontally) and the second connector element is displaceable in another second direction, preferably at right angles to the first direction (i.e. vertically).

In a preferred embodiment the space in the housing is adapted to receive an assembly of multiple bags, and each bag is provided with an associated first connector element, and a base element is provided interconnecting the first connector elements of the bags. The base element guarantees the exact pre-connection position of the first connector elements of the bags either onto the housing of the dispensing device or onto the actuator means.

The bags are usually flexible and collapsible. Therefore, the base element also allows for an increased rigidity of the bags in the region of the first connector elements.

In a preferred embodiment the system comprises a carrier member for one or more bags, preferably a box in which one or more bags are accommodated. This allows for an easy handling of the one or more bags. The box can e.g. be made of plastic. The box can be provided with a handle for handling of the box.

In a preferred embodiment the retaining means of the dispensing device are adapted to retain the base element and thereby the multiple first connector elements of the bags. In a practical embodiment the retaining means are adapted to slidably receive the base element.

30

In a preferred embodiment the first connector elements and base element are interconnected by snap means. This allows the production of bags fitted with first connector elements in a known manner and then interconnecting the bags using the base element in a simple manner before or after filling of the bags.

In a preferred embodiment the dispensing device has multiple second connector elements mounted on a common support, said common support being displaceable between a connected and an unconnected position.

5

In order to avoid premature displacement of the second connector elements it is preferred that the dispensing device comprises detector means for detecting the presence in the space in the housing of a bag or a carrier of one or more bags, and that the detector means are interconnected to the actuator means so that the second connector element(s) is or are only displaceable towards the connected position if the presence of the bag or a carrier of one or more bags is detected.

In a practical embodiment the detector means comprise a mechanical detector contacting a part of the bag, assembly of bags, or carrier.

In a preferred embodiment the detector means are adapted to detect the presence of the base element associated with an assembly of interconnected bags.

20

In a practical embodiment a latch is associated with the actuator means, said latch preventing displacement of the second connector element(s) towards the connected position if no bag, assembly of bags or carrier is detected.

25

In a preferred embodiment the common support for multiple second connector elements comprises a removable support member on which the second connector elements are mounted. This allows e.g. the cleaning of the second connector elements, the exchange of the removable member so that other second connector elements are provided, etc.

30

In a practical embodiment the actuator means comprise rectilinear guide means for guiding the second connector element or the common support of multiple second connector elements.

35

In a preferred embodiment the actuator means comprise a moveable, e.g. slideable member, moveable at right angles to the rectilinear guide means and interconnected to the second connector element or the common support of multiple second elements by a cam mechanism. Preferably said cam mechanism comprises an interengaging slot and follower. Advantageously the slot is provided in the slideable member and the follower is mounted on the common support.

10 In a preferred embodiment a removable or pierceable seal is fitted on the base element covering the openings of the first connector elements. This avoids contamination of the openings of the first connector elements.

15 In a preferred embodiment each first connector element is associated with a closing means closing off the bore of the first connector element prior to interconnecting the first and second connector element. In a further preferred embodiment thereof the closing means is a plug engaging a seat of the first connector element in the closed position, which plug is  
20 displaceable from the seat to an opened position upon connecting the first and second connector element.

In a preferred embodiment the first connector element is a female connector element having a bore and the second element is a male connector element fitting into said bore.

In case of an assembly of multiple bags it is foreseen that each bag is filled with a different substance. In order to avoid incorrect connection between the bags and the dispenser  
30 device it is preferred that the base element and the retaining means comprise interengaging key formations so that the base element can only be retained in a particular orientation by said retaining means.

35

In a preferred embodiment the base element is an elongated strip having a series of spaced receiving openings for

receiving the first connector elements of the bags. In a practical embodiment the strip has retaining rails at opposite longitudinal sides thereof and the retaining means include retaining grooves for slidably receiving the retaining rails.

5

A particular advantageous application of the invention is that the dispenser device is a postmix beverage dispenser device having mixing means for mixing the one or more liquids with water.

10

The present invention also relates to an assembly of bags filled with liquid, each bag having an associated first connector element connectable to a second connector element of a dispensing device and the first connector elements being interconnected by a base element.

15

The present invention also relates to a bag-in-box assembly comprising a box member and an assembly of bags therein.

20

The present invention also relates to a method for filling an assembly of multiple bags with liquid substances, each bag having an associated first connector element and a closing means for closing the first connector element after filling, wherein the bags of the assembly are interconnected prior to filling by a base element interconnecting the first connector elements of the bags, after which the bags are filled, preferably simultaneously, and closed.

25

The invention will now be explained further in detail referring to the drawing, wherein:

30

Fig. 1 schematically shows a part of a system according to the invention,

Fig. 1a shows in cross-section a dispensing of the system of fig. 1,

35

Fig. 2 a bag-in-box according to the invention,

Fig. 3 the actuator means for the second connector elements of the dispensing device, and



Fig. 4a,b the base element and first connector elements of the assembly of bags of the bag-in-box assembly of figure 2.

5 In figures 1-4 the relevant parts of a system for dispensing a liquid substance are shown.

In this example the system comprises a postmix beverage dispenser device having mixing means for mixing the one or more liquid substances with water. In particular the system shown  
10 here is designed for dispensing two substances from two separate bags, e.g. two substances which are then mixed with water to obtain a beverage, e.g. coffee.

The system comprises a bag-in-box assembly 1, shown partly  
15 in figure 1 and in more detail in figure 2, and a dispensing device 100 (see fig. 1a) e.g. a coffee-dispensing device. Of this device 100 only the relevant part is shown as will follow from this description.

20 The dispensing device 100 has a housing 101 in which there is a space 102 for accommodating the bag-in-box assembly 1.

The bag-in-box assembly 1 has a box 2 in which two collapsible bags 3 are accommodated each filled with a liquid substance.

25 The bags 3 are in this example identical, so that the same parts are denoted with the same reference numerals.

Each bag 3 has a first connector element 5, here sealed in the bottom end of the bag 3.

30 A base element 6 (shown in detail in figure 4) is provided interconnecting the first connector elements 5 of the bags 3.

The first connector elements 5 and base element 6 are interconnected by snap means 7.

The dispensing device 100 has two second connector elements 110, each connectable to a first connector element 5 allowing discharge of said substance from the associated bag 3.

5 Associated with the second connector elements 110 are actuator means 200, which allow for a displacement of these second connectors 110 relative to the first connector elements 5 between a connected position and an unconnected position.

A preferred embodiment of these actuator means 200 is  
10 disclosed in detail in figures 1 and 3.

The dispensing device 100 is provided with retaining means 300 for retaining the first connector elements 5 of the bags 3 in a defined pre-connection position prior to interconnecting  
15 the first and second connector elements 5, 110. These retaining means 300 are located here at the bottom side of the space 102, so that the bag-in-box is placed on top of those retaining means 300. The retaining means 300 are adapted to cooperate with the base 6 and thereby retains the first connector  
20 elements 5.

In the preferred embodiment shown in the drawing the retaining means 300 comprise a bracket 301 having a top face 302 on which two parallel rails 303 are mounted. The rails 303  
25 are directed in the insertion direction of the bag-in-box 1 into the space 102. The base 6 is provided with rails 7 at opposite side thereof, so that the rails 7 slidably co-operate with rails 303 of the retaining means 300.

30 The base 6 has an abutment 8 at one end of the rails 7 which comes into contact with the stern faces of the rails 303 and thereby the pre-connection position of the base 6 and thus of the associated first connectors 5 is defined. The abutment 8 and the rails 303 thus also act as key formations so that the  
35 base 6 can only be retained in a particular orientation by said retaining means 300. It will be appreciated that this is in particular relevant if the bags 3 contain different substances.

In the disconnected position the second connector elements 110 are located below the top face 302 of the bracket as is shown in figure 3 and thus outside the space 102 for housing the bag-in-box assembly 1. In figure 1 the second connectors 110 are shown above said top face 302 only to illustrate the presence of these connector elements 110, in fact they should also be located below the top face 302 in this figure 1.

10 The top face 302 of the bracket 301 is provided with apertures which allow the passage of the second connector elements 110 upon connection of the second connector elements 110 to the first connector elements 5.

15 In the preferred embodiment shown here the insertion direction of the base 6 into the bracket 301 is essentially horizontally and the direction of the displacement of the second connectors 110 is essentially vertically. It will be clear that other arrangements are possible as well, including an arrangement wherein the base 6 is on top of the bag-in-box  
20 assembly.

The second connector elements 110 are mounted on a common support 201, which common support 201 is displaceable between a connected and an unconnected position.

25

This common support 201 is embodied here as a removable common support 201, which is held by an associated member 202 of the actuator means 200.

The common support 201 includes two liquid channels  
30 connecting to the second connector elements 110 having sockets 205 for connecting said channels to a corresponding hose (not shown). The removal of the support 201 allows replacement in case second connector elements 110 are needed of a different design and/or if the second connector elements 110 have been  
35 worn out and/or for cleaning purposes.

The actuator means 200 in this embodiment comprise a slideable member 205, which is slideable here in horizontal direction by hand.

5 The bracket 300 has parallel side walls 304 each provided with two rectilinear guide slot 305 which are directed in the direction of displacement of the second connector elements 110.

The member 202 is provided with bosses, here formed by bolts 206, extending through said slots 305. As such the member 10 202 and thus the second connector elements 110 are displaceable in the vertical direction only.

The slideable member 205 has two parallel limbs 207, each slidingly along an associated side wall 304 of the bracket 300.

15 In each limb 205 two slots 208 are formed and the bolts 206 also each extend through one of these slots 208. This results in the effect that upon pushing in the member 205 towards the bracket 300 from the starting position shown in figures 1-3, the bosses 206 are pushed upwards by the limbs 206 20 as these bosses 206 follow the slots 208. It will be clear that the slots 208 are placed at a generally inclined position to effect the upward displacement of the member 202. The shape of the slots 208 may vary.

25 A biasing means, such as a spring can be provided to bias the slideable member 205 to the position associated with the unconnected position of the second connector elements 110.

30 In order to prevent that the second connector elements 110 do effectively protrude above the top face of the bracket 301 before the bag-in-box 1 is inserted - which would damage the second connector elements 110 - provision is made for detector means 400 for detecting the presence of the bag-in-box 1 at the pre-connection position. An associated latch ensures that only 35 when this correct position is detected the actuator means 200 can be operated.

In this embodiment the detector means 400 comprises two mechanical sensors 401 which are contacted by the base 6 only upon full insertion of the base 6 into the retaining means 300. These sensors 401 co-operate with a mechanical latch (not shown) which normally prevents the movement of the slideable member 205.

In order to place a bag-in-box 1 into the dispensing device 100 the operator will open a door or the like associated with the space 102 upon which the slideable member 205 will assume the position shown in figure 1 if no bag-in-box 1 is already connected.

Then the operator will place the bag-in-box assembly 1 in the space 102 whereby the base is slidably connected to the bracket 300. Only when the correct pre-connection position of the base 6 is reached, the sensors 401 effect the unlatching of the slideable member 205. The operator can now push this member 205 inward and thereby effect the upward displacement of the second connectors 110 to the connected position.

20

It will be clear that the actuator means 200 can be power operated if desired.

Also it will be clear that the second connector elements 110 could be arranged in a stationary manner in the dispensing device 100 and that the actuator means 200 would be used to displace the first connector elements 5. In fact this already is the case if the member 202 would be mounted stationary in the dispensing device 100. Pushing the slideable member 205 inwards would then have the effect of displacing the base 6 and the first connectors 5 downwards so that the connection is established.

In a variant not disclosed in the drawings the dispensing device comprises a mechanism for displacing the bag (or bag-in-box) with respect to the retaining means. In this example the mechanism could be used to slide the bag-in-box from the

retaining rails 303 and/or sliding the bag-in-box into the retaining means. This is in particular advantageous if the retaining means would require a vertical movement of the bag or bag-in-box. In a preferred embodiment this mechanism could  
5 include a hand-operable lever.

In another embodiment a lever could be used to actuate one or more displaceable second connector elements, e.g. as a substitute of or in cooperation with the sliding member as  
10 disclosed hereabove.

The base 6 is in the form of an elongated strip having a series of spaced receiving openings 9 for receiving the first connector elements 5 of the bags 3. The rails 7 are located at  
15 opposite longitudinal sides of the base 6.

One or more resilient snap members 10 are placed at each opening 9 to effect the snap connection of the first connector elements 5 to the base 6.

20 In the embodiment shown here the first connector elements 3 are female connector elements 3 and have a body provided with a bore extending from an insertion opening for the second connector element 110 (embodied as a male connector element) to an opening inside the bag 3.

25 In order to prevent contamination of the bore 11 and as a tamper evident a removable or pierceable seal is preferably fitted on the base element 6 covering the openings of the first connector elements 5 (not shown in the drawings).

Each first connector element 5 here further has a closing  
30 means in the form of a plug 12 for closing off the bore 11 of the first connector element prior to interconnecting the first and second connector elements 5, 110.

The plug 12 engages a seat 13 of the first connector element 5 in the closed position. The plug 12 is displaceable  
35 from the seat to an opened position upon connecting the first and second connector element 5, 110. The plug 12 here is

connected by a flexible arm 14 to the body of the connector element 5.

The second connector elements 110 are male connector elements 110 each having a tubular body with a head which interengages with the plug 12.

The base 6 is advantageous for the handling the two bags 3, in particular when assembling the bag-in-box assembly 1. Also the base 6 is advantageous when filling an assembly of multiple bags with liquid substances, each bag having an associated first connector element and a closing means for closing the first connector element after filling. Then the bags are preferably interconnected prior to filling by the base 6 interconnecting the first connector elements 5 of the bags 3, after which the bags 3 are filled, preferably simultaneously, and closed.

## C L A I M S

1. System for dispensing at least one liquid substance, comprising:
- 5 - at least one bag (3) filled with a substance which is to be dispensed,
- a dispensing device (100) which has a housing in which there is a space (102) for accommodating the bag,
- wherein the bag has a first connector element (5),
- 10 and wherein the dispensing device has a second connector element (110), connectable to the first connector element allowing discharge of said substance from the bag,
- characterised in that**
- the dispensing device comprises retaining means (300,303) for
- 15 retaining the first connector element (5) of each bag (3) in a defined pre-connection position prior to interconnecting the first and second connector elements (5,110),
- and wherein the first and second connector elements (5,110) are displaceable relative to each other between a connected
- 20 position and a disconnected position, and wherein the dispensing device (100) has actuator means (200) associated with the first or second connector elements (5,110) for displacing the first and second connector elements relative to each other between the connected and unconnected position.
- 25
2. A system according to claim 1; wherein the second connector element (110) is displaceable, and wherein preferably in the disconnected position the second connector element (110) is located outside the space (102) for housing the bag.
- 30
3. A system according to claim 2, wherein the housing of the dispensing device allows insertion and removal of the bag (1,3) in a first direction (i.e. horizontally) and the second connector element (110) is displaceable in another second
- 35 direction, preferably at right angles to the first direction (i.e. vertically).



4. System according to one or more of the preceding claims, wherein the space (102) in the housing is adapted to receive an assembly of multiple bags (3), and wherein each bag is provided with an associated first connector element (5), and wherein a  
5 base element (6) is provided interconnecting the first connector elements (5) of the bags.

5. System according to one or more of the preceding claims, wherein the system comprises a carrier member (2) for one or  
10 more bags, preferably a box in which one or more bags are accommodated.

6. System according to claim 4 or 5, wherein the retaining means (303) are adapted to retain the base element (6).  
15

7. System according to claim 6, wherein the retaining means (303) are adapted to slidably receive the base element (6).

8. System according to claim 4, wherein the first connector elements (5) and base element (6) are interconnected by snap  
20 means (10).

9. System according to claim 4, wherein the dispensing device (100) has multiple second connector elements (110) mounted on a  
25 common support (201,202), said common support being displaceable between a connected and an unconnected position.

10. System according to one or more of the preceding claims, wherein the dispensing device comprises detector means (401)  
30 for detecting the presence in the space in the housing of a bag or a carrier of one or more bags.

11. System according to claim 10, wherein the detector means (400) are interconnected to the actuator means (200) so that  
35 the second connector element(s) is or are only displaceable towards the connected position if the presence of the bag or a carrier of one or more bags is detected.

12. System according to claim 11, wherein the detector means (400) comprise a mechanical detector (401) contacting a part of the bag, assembly of bags, or carrier (2).

5

13. System according to claim 12, wherein the detector means (401) are adapted to detect the presence of the base element (6) associated with an assembly of interconnected bags.

10

14. System according to one or more of the preceding claims, wherein a latch is associated with the actuator means (200), said latch preventing displacement of the second connector element(s) towards the connected position if no bag, assembly of bags or carrier is detected.

15

15. System according to claim 9, wherein the common support comprises a removable support member (201) on which the second connector elements (110) are mounted.

20

16. System according to one or more of the preceding claims, wherein the actuator means (200) comprise rectilinear guide means (305,306) for guiding the second connector element or the common support of multiple second connector elements.

25

17. System according to one or more of the preceding claims, wherein the actuator means (200) comprise a slideable member (205), slideable at right angles to the rectilinear guide means and interconnected to the second connector element or the common support of multiple second elements by a cam mechanism.

30

18. System according to claim 17, wherein said cam mechanism comprises an interengaging slot (208) and follower (306).

35

19. System according to claims 17 and 18, wherein the slot (208) is provided in the slideable member (205) and the follower (306) is mounted on the common support (201,202).

20. System according to claim 4, wherein a removable or pierceable seal is fitted on the base element covering the openings of the first connector elements.

5 21. System according to one or more of the preceding claims, wherein each first connector element (5) is associated with a closing means (12) closing off the bore of the first connector element prior to interconnecting the first and second connector element.

10

22. System according to claim 21, wherein the closing means is a plug (12) engaging a seat (13) of the first connector element in the closed position, which plug is displaceable from the seat to an opened position upon connecting the first and second  
15 connector element.

23. System according to one or more of the preceding claims, wherein the first connector element (5) is a female connector element having a bore and the second element is a male  
20 connector element (110) fitting into said bore.

24. System according to claim 6, wherein the base element and the retaining means (303) comprise interengaging key formations (8,303) so that the base element can only be retained in a  
25 particular orientation by said retaining means.

25. System according to claim 6, wherein the base element (6) is a elongated strip having a series of spaced receiving openings (9) for receiving the first connector elements (5) of  
30 the bags.

26. System according to claim 25, wherein the strip has retaining rails (7) at opposite longitudinal sides thereof and the retaining means (303) include retaining grooves for  
35 slidably receiving the retaining rails.

27. System according to one or more of the preceding claims, wherein the dispenser device (100) is a postmix beverage dispenser device having mixing means for mixing the one or more liquids with water.

5

28. An assembly of bags filled with liquid, each bag having an associated first connector element (5) connectable to a second connector element (110) of a dispensing device and the first connector elements being interconnected by a base element (6).

10

29. A bag-in-box assembly comprising a box member and an assembly of bags therein according to claim 28.

30. Method for filling an assembly of multiple bags with liquid substances, each bag having an associated first connector element and a closing means for closing the first connector element after filling, wherein the bags of the assembly are interconnected prior to filling by a base element interconnecting the first connector elements of the bags, after which the bags are filled, preferably simultaneously, and closed.

15

20

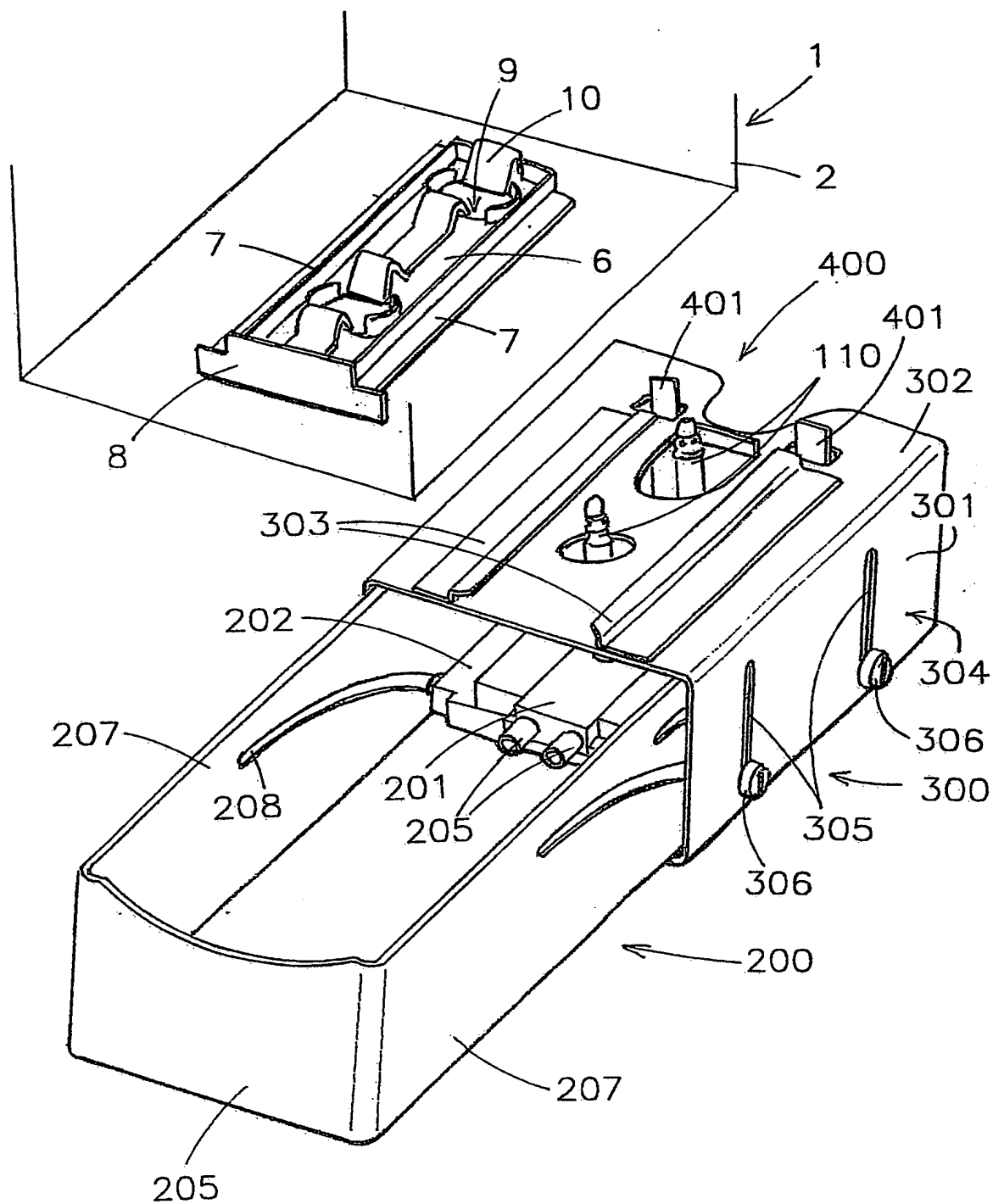


Fig 1

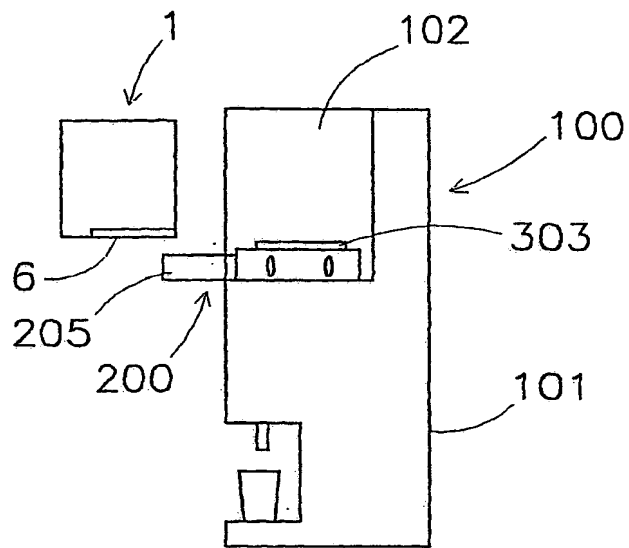


Fig 1a

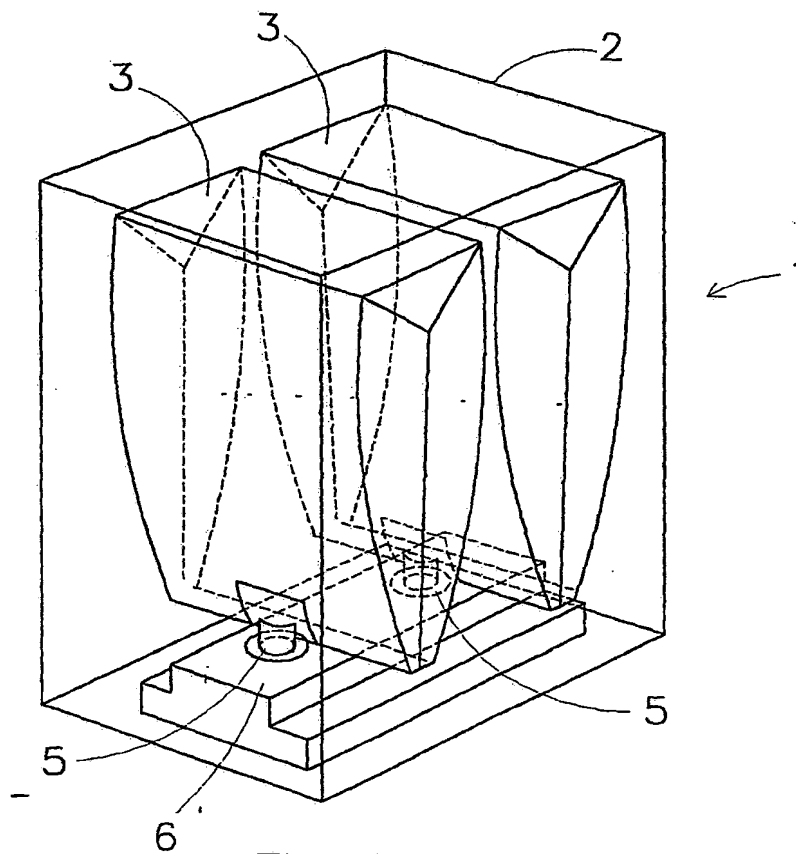


Fig 2

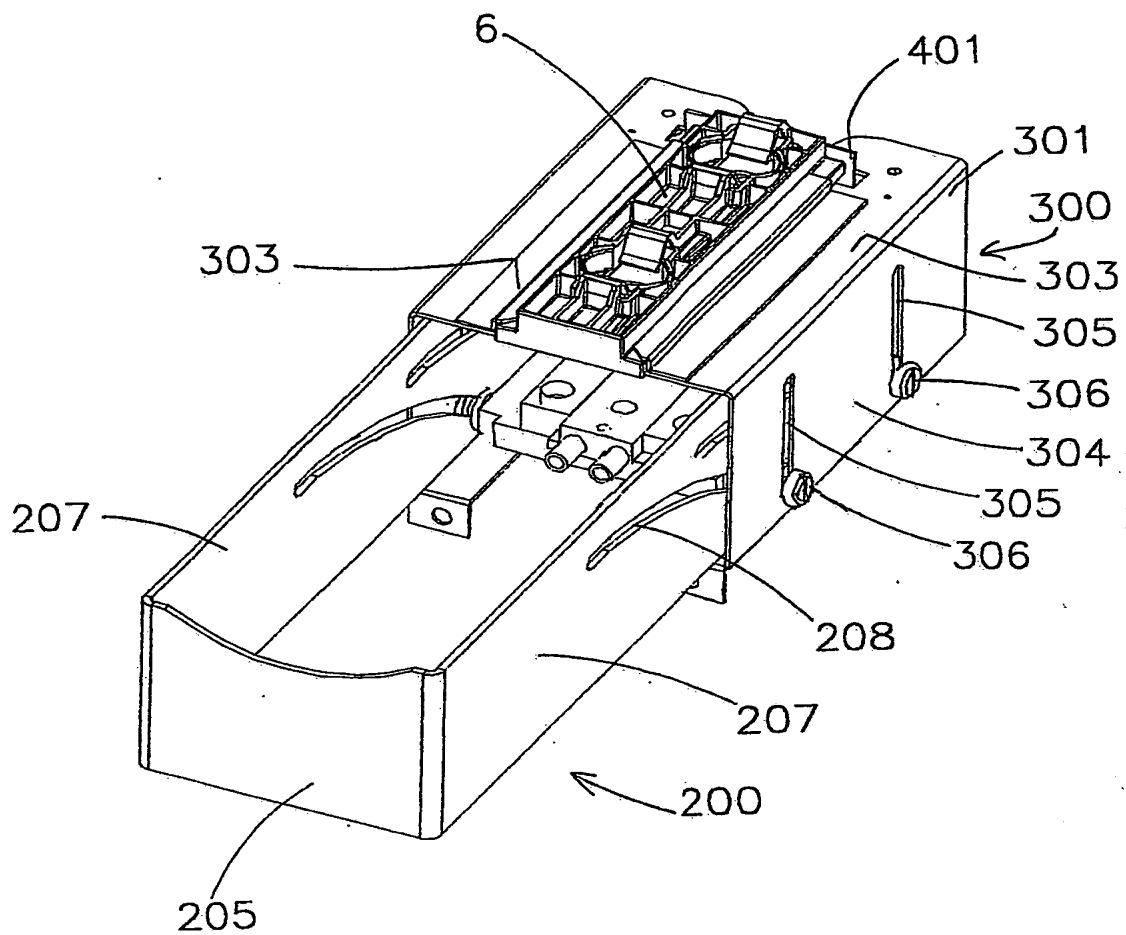


Fig 3

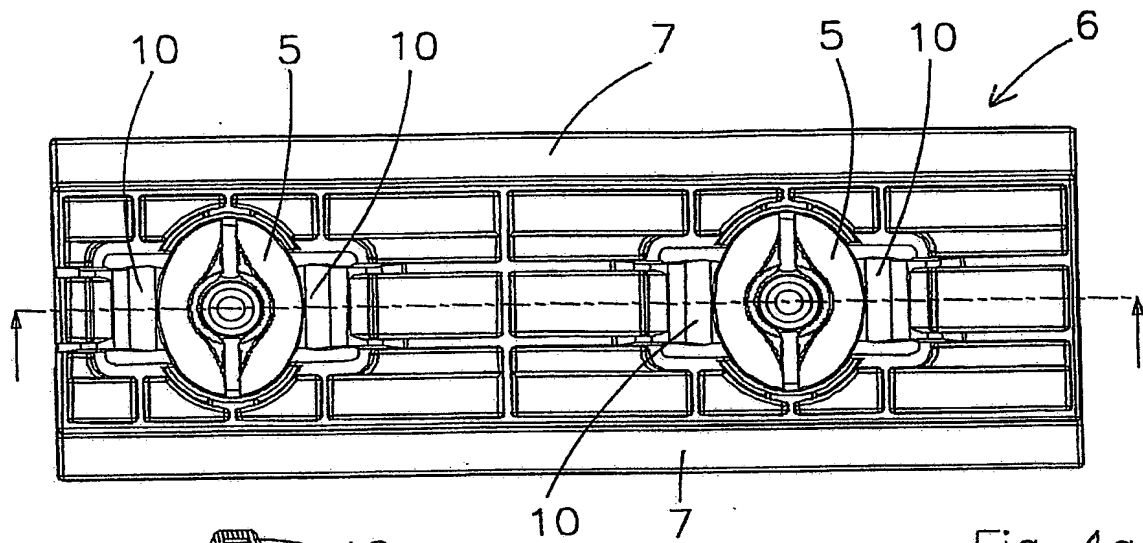


Fig 4a

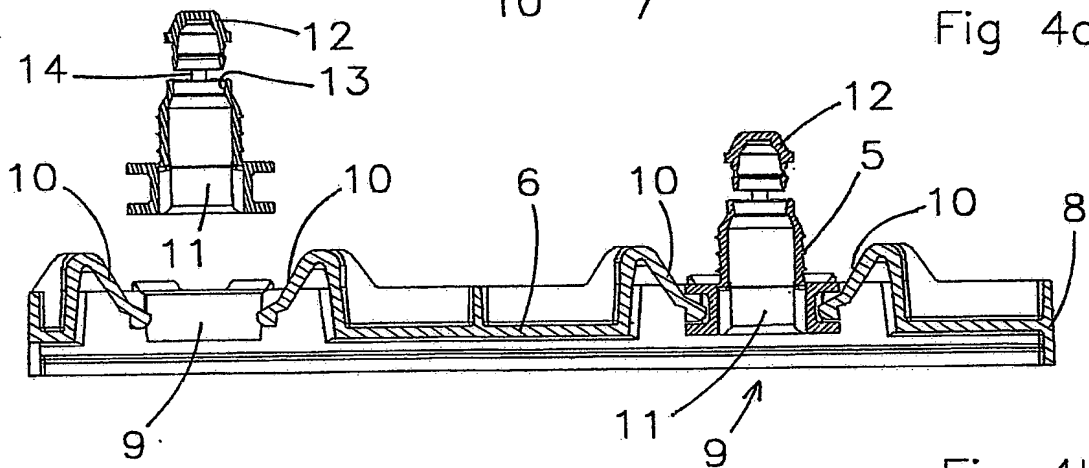


Fig 4b



# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/NL 02/00516

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B67D1/00 B67D3/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B67D B65D A47J B67B G03C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 353 085 A (COCA COLA CO) 31 January 1990 (1990-01-31) column 4, line 4 - line 21 column 2, line 50 - line 58; figures 1-3 ---	28,29
X	US 5 058 780 A (PLESTER GEORGE ET AL) 22 October 1991 (1991-10-22) column 4, line 48 - line 68; figures 1A,9-11 ---	28,29
A	EP 1 006 415 A (ITSAC NV ;SHOWA MARUTSUTSU CO LTD (JP)) 7 June 2000 (2000-06-07)  column 10, line 3 - line 56 column 12, line 18 - line 47 column 27, line 10 - line 58; figures 2,4,14,15  --- -/--	1-3,5,6, 20,22, 23,28,29

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

29 October 2002

Date of mailing of the international search report

29. 01. 03

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Desittere, M

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/NL 02/00516

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 603 432 A (PACHECO GILBERT R ET AL) 18 February 1997 (1997-02-18) figure 11 ---	1,2,4, 21,23
A	WO 93 23327 A (COCA COLA CO) 25 November 1993 (1993-11-25) the whole document ---	10-12
A	US 4 655 266 A (CIEKANSKI FRANCOIS) 7 April 1987 (1987-04-07) figure 1 ---	1
A	DE 35 10 843 C (WELLA AG) 2 January 1987 (1987-01-02) the whole document ---	1
A	WO 02 26585 A (LAST LAURENS ;ITSAC NV (NL)) 4 April 2002 (2002-04-04) figure 2 ---	1
A	US 4 561 567 A (WITTSTEIN MARTIN D ET AL) 31 December 1985 (1985-12-31) figure 2 ---	1
A	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 06, 30 June 1997 (1997-06-30) & JP 09 051852 A (KEY COFFEE INC;KYOKUTO SANKI CO LTD), 25 February 1997 (1997-02-25) the whole document -----	1

# INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/NL 02/00516

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-29

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-29

Claims 1-29 relate to a system or to an assembly for dispensing liquids from one or more bags.

2. Claim : 30

Claim 30 relates to a method for filling an assembly of multiple bags.

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/NL 02/00516

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0353085	A	31-01-1990	US 4913316 A	03-04-1990
			AT 114609 T	15-12-1994
			AU 627479 B2	27-08-1992
			AU 3903189 A	15-02-1990
			BR 8903719 A	20-03-1990
			CA 1319653 A1	29-06-1993
			DE 68919572 D1	12-01-1995
			EP 0353085 A1	31-01-1990
			JP 2152689 A	12-06-1990
			MX 167294 B	15-03-1993
			US RE33969 E	23-06-1992
			ZA 8905534 A	27-03-1991
US 5058780	A	22-10-1991	AT 92891 T	15-08-1993
			AT 97636 T	15-12-1993
			AT 145985 T	15-12-1996
			AU 644100 B2	02-12-1993
			AU 6316890 A	28-03-1991
			AU 641180 B2	16-09-1993
			AU 6317690 A	28-03-1991
			AU 634827 B2	04-03-1993
			AU 6426990 A	18-04-1991
			BR 9006922 A	24-12-1991
			CA 2025905 A1	23-03-1991
			CA 2025906 A1	23-03-1991
			CA 2042061 A1	23-03-1991
			DD 297616 A5	16-01-1992
			DE 59002294 D1	16-09-1993
			DE 59003590 D1	05-01-1994
			DE 69029320 D1	16-01-1997
			DE 69029320 T2	07-05-1997
			DK 418926 T3	15-11-1993
			DK 418927 T3	25-04-1994
			EP 0418926 A1	27-03-1991
			EP 0418927 A1	27-03-1991
			EP 0445264 A1	11-09-1991
			ES 2043211 T3	16-12-1993
			ES 2046639 T3	01-02-1994
			JP 2076336 C	25-07-1996
			JP 3226490 A	07-10-1991
			JP 7100518 B	01-11-1995
			JP 2610604 B2	14-05-1997
			JP 3212398 A	17-09-1991
			JP 8033317 B	29-03-1996
			JP 3505379 T	21-11-1991
			NO 911909 A	19-07-1991
			PH 26933 A	03-12-1992
			WO 9104465 A1	04-04-1991
			US 5154319 A	13-10-1992
			US 5234134 A	10-08-1993
			ZA 9007562 A	30-10-1991
			ZA 9007563 A	30-10-1991
EP 1006415	A	07-06-2000	JP 11065253 A	05-03-1999
			JP 11143204 A	28-05-1999
			CA 2300202 A1	25-02-1999
			EP 1006415 A1	07-06-2000
			WO 9909460 A1	25-02-1999

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 02/00516

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5603432	A	18-02-1997	US 5348192 A CA 2123268 A1 CN 1100786 A EP 0626341 A1 JP 7010190 A	20-09-1994 13-11-1994 29-03-1995 30-11-1994 13-01-1995
WO 9323327	A	25-11-1993	US 5312017 A BR 9306356 A CA 2118232 A1 EP 0639155 A1 JP 3228747 B2 JP 7507984 T KR 256424 B1 MX 9302809 A1 WO 9323327 A1	17-05-1994 30-06-1998 25-11-1993 22-02-1995 12-11-2001 07-09-1995 15-05-2000 31-05-1994 25-11-1993
US 4655266	A	07-04-1987	FR 2568119 A1 AT 38615 T DE 3566219 D1 EP 0172126 A1 FR 2600800 A2 US 4738290 A	31-01-1986 15-12-1988 22-12-1988 19-02-1986 31-12-1987 19-04-1988
DE 3510843	C	02-01-1987	DE 3510843 C1	02-01-1987
WO 0226585	A	04-04-2002	NL 1016292 C2 AU 1106502 A WO 0226585 A1	02-04-2002 08-04-2002 04-04-2002
US 4561567	A	31-12-1985	NONE	
JP 09051852	A	25-02-1997	NONE	

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☒ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**

**THIS PAGE BLANK (USPTO)**